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CREATIVITY RESEARCH AND ITS IMPLICATIONS FOR ADULT EDUCATION.

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THIS COMMENTARY ON CREATIVITY RESEARCH DEFINES THE CREATIVE RESPONSE AND THE PERSONALITY CHARACTERISTICS OF THE CREATIVE PERSON, AND OUTLINES THE CREATIVE PROCESS AND THE BARRIERS AND FACILITATORS TO IT. CREATIVE WRITERS AND PAINTERS ARE USED AS EXAMPLES. CERTAIN TEACHING METHODS ENCOURAGE CREATIVITY--(1) LEADING THE STUDENT TO QUESTION, (2) USING ANALOGY, METAPHOR, AND FREE ASSOCIATION OF IDEAS, (3) PERMITTING LOGICAL ANALYSIS TO COME LATE IN THE DISCOVERY PROCESS, (4) ENCOURAGING SKEPTICISM, (5) PERMITTING DISORDER, (6) LEAVING BLOCKS OF FREE TIME FOR THOUGHT, (7) FURNISHING AESTHETIC EXPERIENCES, (8) REWARDING CREATIVITY, AND (9) RELATING SUBJECTS TO OTHER DISCIPLINES OR TO WIDER CONCEPTS AND PROBLEMS. IN ADULT EDUCATION, THE ADMINISTRATOR IS RESPONSIBLE FOR DESIGNING A CURRICULUM TO FOSTER CREATIVE CAPACITY, FOR FACILITATING THE COMMUNICATION OF ABLE PEOPLE WITHIN THE ORGANIZATION, AND FOR ENCOURAGING NEW WAYS OF APPROACHING PROBLEMS AND INTERACTION AMONG AN AUTONOMOUS FACULTY AND STAFF. HE MUST BE OPEN TO NEW IDEAS AND BE AN ABLE, CREATIVE PERSON WHO VALUES THE DEVELOPMENT OF SENSITIVE MINDS. A BIBLIOGRAPHY CONTAINS 24 REFERENCES. THIS DOCUMENT IS ALSO AVAILABLE FROM THE CENTER FOR THE STUDY OF LIBERAL EDUCATION FOR ADULTS AT BOSTON UNIVERSITY, 138 MOUNTFORT ST., BROOKLINE, MASSACHUSETTS 02146, FOR $1.25. (AJ)

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JANE C. ZAHN

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INTRODUCTION

Recently, an adult educator looked for effective teachers of adults among Peace Corps Volunteers. Seventy Volunteers were interviewed; seven were chosen as the most promising candidates. Later, our educator discovered that six of these seven had been trained at the same institution, where a particular effort had been made to use a creative approach in training. Much impressed, he wanted to tell all adult educators: "I have seen creative program development and administration—and it works."

In this volume, Creativity Research and Its Implications for Adult Education, Dr. Jane Zahn, drawing implications from creativity research findings, discusses the elements that go into a creative program. Imaginative programs to train Peace Corps Volunteers for specific kinds of service abroad, or that educate an adult audience interested in liberal or professional education, or that are intended for still other purposes, can be developed by a staff working within an environment that stimulates creative approaches to programming. The best teachers are attracted to such programs and environments, and "questioning" adults quickly discover that "the best there is" is being made available, and that each of them can learn much there.

There is no single road to creative programming in adult education. However, creativity research has uncovered considerable knowledge about, for example, the differences between creative people and those less creative. The creative process has been analyzed; the environment within which creative behavior can flourish—or is stifled—has been described.

The first part of Dr. Zahn's paper is an excellent summary of the main findings of this research. All adult educators will find the summary interesting and enlightening. But the meat for most of us is in the balance of the paper, which deals with the implications of creativity research for adult education. Dr. Zahn's observations are, I believe, soundly based in research and pointed toward the adult educators' real problems. I sus-

pect that some of our difficulties as educational administrators derive from a failure to base policy development and administrative practice upon what the latest research indicates are more creative ways of doing things.

Dr. Zahn, in writing this paper, and CSLEA, in publishing it, have done the field a great service.

Morton Gordon
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CREATIVITY RESEARCH

Creativity—whether that of the scientist, the artist, or the man in the street who finds a unique solution to a problem—has no simple cause nor do we yet understand it. Variations in the human personality, the social and educational system, historical forces, and the working environment affect it. Nevertheless, it is possible to identify certain general factors influencing the creativity of persons and groups.

Social scientists sought in the last ten years to bring these factors to light by studying the personality characteristics of creative people as compared with their less creative peers, the creative process itself, and the environmental factors which appear either to facilitate or inhibit that process. Creativity is not a subject that lends itself easily to laboratory experiments, but in recent years attempts to investigate the problem under controlled conditions have begun. Studies have been conducted by Donald MacKinnon and his associates at the Institute of Personality and Assessment Research at the University of California at Berkeley, by E. Paul Torrance at the University of Minnesota, by Morris Stein at New York University, by Donald Taylor at Yale, and by J. P. Guilford at the University of Southern California. This article first gives a composite of their findings and then comments on the implications for teaching generally and for adult education in particular.

To discuss creativity without wallowing in a mire of semantic difficulties we must first define it. The definition developed by MacKinnon and his associates is clear and helpful to educators. They defined creativity as a response with three characteristics. First, the response must be novel, or at least statistically infrequent. This condition alone is not sufficient, however, as the bizarre response of a schizophrenic is often novel and hopefully statistically infrequent, but it does not fall within the rubric of a creative response. Therefore, the second condition is that the response be adaptive to or of reality. The third condition of a creative response is that there exist a sustaining of the original insight—an evaluation, elaboration, development over time. For some creative response:

the time dimension will be brief; for others the development will take place over years.

If creative persons are compared with less creative persons in their own fields, certain personality characteristics and attitudes toward work are common to creative persons in all fields. In personality and attitude a creative physicist is more like a creative artist than he is like another Ph.D. in physics. A creative writer has less in common with a less creative writer than with a creative scientist. Those in a specific field have characteristics similar to others in the field; this is to be expected. But the similarities of personality and attitudinal characteristics across fields are predominant and sometimes startling. Creative artists, writers, mathematicians, architects, and scientists differ from those less creative in the following ways:

1. Greater Aesthetic Sensitivity. The more creative persons place a high value on aesthetic experiences and responses. They take an aesthetic view of their work; they enjoy aesthetic impressions; they are aesthetically reactive. When asked to construct colored mosaics in an experimental situation, creatives tend to construct mosaics of originality, warmth, and pleasingness, which use form and color well and have overall artistic merit as judged by artists. They delight in an elegant, aesthetic solution to a problem, finding the artistic form of the solution as satisfying as the resolution of the problem itself.

2. Imaginative. Creative persons have more imaginative, new, different, novel ideas, both in quality and quantity. They combine and recombine experience more easily into new patterns and configurations. They have more ideas per unit of time and their ideas cover a greater range of human experience.

3. Flexible. The creative have more ability to shift and to adapt, to deal with the new, the unexpected, and the unforeseen.

4. More Self-reliant, Individualistic, and Independent. Creative persons value their own independence and autonomy. They reveal very little interest in being included in group activities. They do not belong to many organizations. They are not preoccupied with the impression they make on others and are strongly motivated to achieve in situations where independence in thought and action are called for. They are less inclined to strive for achievement in settings where conforming behavior is expected

and required. They are nonconformists, with individualistic ways of viewing and interpreting the world.

5. More Perceptive. Whenever a person experiences a phenomenon, including thinking about it, he either perceives it (that is, becomes aware of it) or judges it (comes to a conclusion about it). Creatives show a preference for perceiving, a preference which leaves them more open to internal and external experience and allows for flexibility and spontaneity. Creatives also prefer to perceive intuitively, that is, to experience an indirect sense of the deeper meanings and possibilities inherent in the experience.

6. Commitment to Their Work. Creatives have a profound commitment to the meaning of their work. They are continually concerned with creating a universe of meaning and consider their work central to it. Through their work they struggle for a deeper richness and complexity of understanding and insight. To suffer the pains and stimulate the effort required for creative insight, undoubtedly the artist or scientist must and does believe in the fundamental importance of his work.

Creative Writers and Painters: An Example

Creative artists and writers, the verbal and visual translators of meaning, provide a hypertypic example of more creative people generally when compared with their less creative fellow workers in their chosen field. Artists and writers transform and illuminate a world of meaning and experience that the physicist and mathematician experience and illuminate in different symbols. The impressionist painters of the early twentieth century described visually the world of the emerging science of optics, just as much contemporary painting responds to the non-Euclidean universe. The stream-of-consciousness writing of Joyce narrated the simultaneous, subtly-linked free associations observed by Freud in his treatment of hysterics. Poets sung of the despair of alienation reflected in the systematic theory and empirical studies of sociologists and economists. This subtle brotherhood of the arts and sciences persists despite the fact that the concepts and theories of the sciences often seem on the surface to be irrelevant to the forms and fantasies of the arts.

Like other creatives, writers and painters prefer disorder to the

simple, the geometrical, the ordered and the balanced. Out of apparent chaos artists are challenged to construct a new and subtle ordering of their own. They evidence a consistent preference for complexity of design, situation, and environment. When asked to select between paintings or figures, writers prefer those which are non-geometric and non-simple. They are open to the challenge of innovation and to the invitation to create a different balance from imbalance. They regard disorder as a fertile field of the unexpected, the playground of humor and incongruity. The simple affords no stimulus to the imaginative creation, that act of formulating mental images in a synthesis of new ideas so delightful, so necessary, and yet so painful to the artist. From the non-geometric they tend to construct a self-expression of what they want to give instead of conserving that given to them by others. It is their hope that out of imbalance, innovation will reveal expression of internal impulses and description of often-denied experiences, sometimes through violence and through a painful and experimental attitude toward conventional ideas.

Writers and artists generally exhibit more flexibility than the average person in the population and the creative writers and artists are more flexible than their less creative fellow draftsmen. Flexibility is the readiness to adjust to changing conditions, a responsiveness to new experience, whether welcome or unwelcome, and an ability to adapt and modify readily. It is not, at least for creative writers, a ready responsiveness to group or social pressures, but rather an emotional and intellectual willingness to change self-constructed concepts as a result of internal and external experience. Flexibility resides in the general nature of the artist where the personal penalty for not understanding is more frightening than the fear of looking experience full in the face. Flexibility induces inquiry rather than rationalization, and exploration rather than conformity.

Creative writers and painters are independent in the face of pressure from false group opinion and value highly achievement through independence. Agreeing with a group when the group is wrong is conformity; disagreeing with the group when the group is right is nonconformity, in reality only another type of conformity because what the group thinks is still determining. Agreeing with the group when it is right and disagreeing with it when it is wrong is independence. Creative artists and writers are able to disagree with an erroneous group opinion far more often than most people even when the pressures from the group are severe and the group is

composed of other creative artists. This independence is more difficult and thereby more to be highly valued when we observe how emotionally tearing disagreement with respected others can be.

As we would expect, creative artists and writers are more artistic than their less creative fellows. Like scientists describing a theory, they acknowledge a beauty which exhilarates and a profundity which entrances. They value the aesthetic and theoretical over the economic and social. Design, form, color, and sound induce a driving interest; and aesthetically pleasing arrangements of these elements excite their emotions. Relying on the aesthetic impulse, they rearrange experience in a manner artistically pleasing to themselves, seeing truth itself as aesthetic design.

One of the mainsprings for creative artists and writers appears to be the tendency we discover in other creatives—the tendency to look at experience intuitively. Intuition in this sense means the indirect perception of the deeper meanings inherent in objects, sensations, and events, rather than the more limited direct experiencing through the senses. This tendency uncovers meanings which for many are deeply buried under layers of psychological defenses or hidden under elaborate facades. Intuitive awareness undoubtedly exists to some extent in every individual, but creative artists achieve the proper personal conditions to release and express it. It is this intuitive approach to experience which is a strong personality characteristic, enabling the writer to form new relationships to the environment in his endeavor more fully to explore, understand, and explain.

Creative artists commit themselves to the problem at hand. They appear to be profoundly dedicated to larger philosophical questions and concerns. They are continually involved in constructing their unique personal universes of meaning, metaphysical rather than physical. They make the necessary, though intensely personal, discrimination between the petty and the significant, the superficial and the deep-seated, the absurdly apparent and the shockingly hidden, the excellent and the shoddy.

Many, perhaps most, creative artists impress their personalities very forcefully on others in a social situation and often seem motivated to dominate any group with whom they interact, exhibiting a strong psychological interest in others as well as themselves. Writers create primarily because feeling as well as thinking is satisfying to them, because

impulse is found to be self-actualizing, and because a high energy level drives them to master and understand social situations as well as internal struggles and conflicts.

The Less Creative Person

In an attempt to discriminate between personality characteristics of creative persons and those of the less creative, it is interesting to investigate the adjectives often applied by observers to the less creative, but very seldom to creative persons. Such adjectives are jolly, good-natured, cheerful, conventional, moralistic, rigid, and authoritarian. However, no pessimistic conclusion about humor defeating creativity is justified. One of the distinctive differences between creative and less creative children is the strongly developed and highly prized sense of humor displayed by the creative children. But when an individual is more interested in getting along peaceably with others than in exploring and understanding himself and his environment, his behavior will be less creative, and his drive for new synthesis, which may conflict with the accepted, traditional knowledge, will be essentially hampered. The differentiation is sharper when we examine the authoritarian personality, a habitual way of responding to experience with a closed mind. To the extent that the individual denies to awareness large areas of his own experience in order to merge with the herd, his creative strivings will be submerged in a pathological need to submit to higher authority. To the degree that the individual is closed to many aspects of his own experience, he will frantically desire that others also be closed and submit; to the degree he is unaware of all the varied sensings and perceivings which are going on within himself, he cannot permit others to be aware of sensings and perceivings different than his own; novel products of his own interaction with his environment are intolerable; how can he tolerate novel interactions of others? An individual with authoritarian tendencies sees the world as menacing and unfriendly, finding evidence in the minutest cues that life is a power system. This theory makes it necessary for him to be close to or identified with the source of power, hopefully a leader who is strong and infallible enough to restrict the enormous range of his experience from his own awareness. Imagination is regarded as crazy by the authoritarian, and only a limited prescribed number of ideas are seen by him as socially constructive. Notably he dislikes being budged out of the channel in which he oper-

ates, a frightening possible consequence of being non-defensive and open. This is not to say that such a person is unintelligent or unimaginative, but that his personality restricts the free play and flow of his intelligence and imagination.

If he could add to the sensory and visceral experiences characteristic of animals the free and undistorted awareness of human beings, he could find alternative solutions to problems; but this would mean being aware of differences, and differences are seen as strange, uncanny, and threatening. He would have to become aware that the demands of his own group are no more exalted than the demands of a different group; that other groups possess virtues as well as vices that his group lacks; he would become aware of his delicate and sensitive tenderness toward members of other groups as well as of his own and his group's desire for self-aggrandizement. A fully functioning capacity for awareness would ridicule his neat and false fear-producing labels, would recognize that his sensuality may not need to be severely controlled; he would realize that other groups may be able to achieve without depriving him, and would reveal that sometimes he himself is aggressive, lustful, avaricious, or indolent and that his insight into these facets of others' behavior is a projection of qualities in himself.

The authoritarian person may appear to others as well-adjusted and untroubled. The unbalanced, unrealistic, restricted responses and attitudes often lurk hidden under conventional, polite, unruffled, pleasant exteriors. The man behind the smooth facade, however, is less than fully a man because he denies himself the awareness of the multiplicity and complexity of life. We have reason to fear him and his actions, and he and his society are denied the fruits of his creative potential.

The Creative Process

What are the processes through which the individual goes when he is engaged in a potentially new and constructive act? Through biographical revelations and empirical observations, we can reconstruct them.

A. Period of Preparation. This is the period of asking the question and posing the problem. Categorization and analysis are harmful in this period. To protect against premature organization, all experience remotely relevant to the problem is invited into awareness. The person

must be open to experience the posing of the problem itself as a creative act, to play freely with the problem as a challenging puzzle, without being forced into asking the question in a predetermined fashion. Whether the question originates in the environment, in the impact of form, sound, or color, in the nerves or viscera or as a memory from the past, it is available, puzzling, and subject to exploration. Instead of perceiving in predetermined categories, which eliminate many questions, the individual must become aware of the existential challenge as it is and ask the many questions which fall outside the usual categories.

Studying the problem involves openness to experience. It means investigating the environment with a lack of rigidity. It means recognizing and welcoming ambiguity where ambiguity exists. It means receiving much conflicting information without closure and arbitrary limitations. It means a playful delight in the new and unusual.

This openness to asking a new question, asking an old question in a new way, and welcoming ambiguous, odd, and seemingly irrelevant data into the awareness is an important condition to constructive solution of the problem. Undoubtedly, no creative person is openly aware of all experience simultaneously. A musician may not be able to recognize the mathematical symbolism and relationships underlying a completed composition, but may be sharply and sensitively aware of new sounds, rhythms, and time. A writer may not know of the chemical and biological causes of some of the human behavior he observes, but may nevertheless be completely alive to nuances of words, sentences, and phrases that express the myriad reactions of human beings to each other. When there is openness to part of experience, creative posing of the problem is possible. If the openness is in only one phase of experience, the question may not be asked in a way that eventuates in the most desired solution. The more the individual has available all phases of his experience, the more likely it is that he will ask the basic question in a personally meaningful way or will rephrase old questions in such a way that a constructive original answer may be found.

B. Period of Concentrated Effort To Solve the Problem. Perhaps the most fundamental condition in solving the problem is overcoming habits of thought. The creative solution to a problem is only reached by eliminating stereotyped perceptions. Habits of thought previously satisfying in solving other problems may not help to answer the present ques-

tion. Stereotyped feelings and thoughts keep us from seeing possible new solutions and avenues of approach. Each creative person operates in his own idiosyncratic way; but this unique manner of acting and exploring questions must change somewhat with each new challenge or the creative person will "go stale," drearily repeating with little variation old solutions that do not seem fit or appropriate.

This does not mean that he is oblivious to, or unaware of, his own past experience and the past experience of others. It is simply that the source of a new solution lies in overcoming the past, in reacting to the present question in a different way. If the person is actualizing potentialities which heretofore have not existed and are now emerging into existence or into new combinations, then he is working toward a satisfying and creative solution.

C. Period of Withdrawal. A period of withdrawing from the problem, of running away, of thinking of other things, of burying the question for a while seems to be a condition for creativity. None of us is completely open or lacking in rigidity, and the withdrawal period seems to be the time when subconsciously we play spontaneously with ideas, colors, relationships, shapes, juggle impossible hypotheses, shape elements into wild combinations, expound the absurd, question assumptions, alter forms, ask if the improbable is possible. In this spontaneous, subconscious play and exploration old mental sets are broken down; a new and significant combination of elements prepares to emerge. Out of the painful retreat comes the new synthesis of seemingly accidental or random experience.

D. Period of Insight. Suddenly, out of seeming abandonment and resignation comes the original and fitting response. We cannot expect an accurate description of this act, often called the "aha" experience, for by its very nature it is indescribable. This is the unknown which was unrecognized even by its creator until it happened. This is the fresh improbability that became the spontaneously probable. In a very general way we can say a childlike perception is the natural next step to a person open to contact with the fullest reality, free to experiment in a flexible fashion with all kinds of seemingly irrelevant events. Out of the dedicated concern, the puzzled inquiry, the mass of information and experience, the mind selects in some unknown way the unique combination of factors which most effectively meets the conditions of his question, or the one

that gives a fresh explanation, or the spontaneous, new, aesthetically satisfying ordering of ideas.

E. Period of Elaboration. There is one quality of the creative act which may be observed and described without which the rest of the society is deprived of the creative product. In all creative products there must be a period of elaboration, of verification, of discipline, of the ultimate development of the idea so it becomes meaningful to others. The artist must paint on canvas the forms and colors he has seen in his mind. The scientist must elaborate and develop his theory or he must test it in a series of laboratory experiments. The writer must select those words and phrases which give meaning to what he has to say in long hours at the desk. This is the attempt to communicate meaningfully with others, so that the creative insight, although usually achieved in loneliness, is shared, and becomes part of the possible experience of those who wish to see in the new way, too. Out of a multiplicity of confusing facts, childlike perception has made possible a new way of understanding reality. This fresh way of seeing, strained through a disciplined personal selection can reconstruct reality for others, and the creative person is driven to complete the new edifice in order that others can find the new aesthetic order for themselves as well, even if these others must be imagined. Rarely does the artist undertake the problem in order to communicate, but keeping his solution entirely to himself seems almost impossible after he has discovered it.

Barriers to the Creative Process

The difficulty with the creative process is that it creates something new and the new evokes fear. Indeed, a close look at the treatment accorded those who deviate is enough to dispel any notion that the creative act is only rewarded, not punished as well. When Simmelweiss discovered the true carriers of childbed fever, his fellow doctors denounced, ignored, or boycotted him as well as his ideas. Freud presented his theories of infantile sexuality to a horrified and disgusted group of eminent colleagues. Those observing the treatment of many discoverers of the new can conclude that the products of creative insight and labor often evoke social disapproval. Nothing can obscure the fact that dislike, detraction, and derision are unpleasant experiences. The fear of encoun-

tering them can be so great as to frustrate the drive toward creative discovery.

The fear of separateness hinders an involvement in the creative process. To set oneself the task of evolving the previously unseen, is eventually to ask, "Am I lost, too different, or crazy?" It is not that the person engaged in creative work wants to be separate but that in his discovery and commitment he will be separate. All of us fear being cut off and alone; if the fear is too great, it will slow up or cut off the urge to work toward the new.

The fear of making mistakes hampers originality. The creative process as it has been described by so many mathematicians, scientists, and artists includes many attempts that end in failure—tentative, sometimes rambling explorations down blind alleys and sidetracking byways, misguesses, false hypotheses, and miscalculations. Learning occurs through trial and error, the error as important to the final discovery as the trial. A few or many mistakes must be made before the final fresh insight occurs. A fear of being wrong, of making a mistake, of failing immediately to achieve the correct will hinder or make impossible the creative solution.

Fear of one's own unconscious processes hinders the search for patterns and new configurations. Most people habitually clamp down on frightening, forbidden thoughts and impulses arising from within, and this clamping-down process takes trouble, energy, and time. If too much emotional energy is devoted to denying and closing off internal experience, little is left for the demanding task of creating the new. There may be an occasional flurry of the unexpected, but most of the time must be spent in constructing a self-deceiving wall against dislike of parts of oneself. Creativity arises out of the interaction of the self with a variety and complexity of experience, both internal and external. To cut off part of internal experience from awareness is to shut out a source of creativity; to fail to look inside is to fail to free the future. We cannot see ourselves internally naked and unaware without shock; evil, hate, irresponsibility, sloth, indifference, lust jostle good, love, honor, sympathy, commitment, and tenderness in an intertwined and often frightening jumble. Undoubtedly, out of this jungle, through understanding, courage, and awareness springs up the unforeseen discovery, Depressed is the word for the unaware. The center of ourselves reveals the signs of the unique and the

universal; from a realization of shabby motives and the continuous snarl of strong emotions come sympathy and an intuitive sense of deeper meanings. The price of becoming distant from the center of oneself is the poverty of alienation and indifference. Delinquency potential can be the thrust to greater richness and complexity; the intellectualized denial of unthinkable thoughts and unrecognized feelings can bring boredom and a lack of interest in worthwhile things to do. The capacity to go on learning and going on demanding the satisfactions and pain of internal awareness is a condition of creative understanding. The sense of social responsibility encouraged by our recognition of our own savage antisocial impulses makes possible new insight. In the case of those who fear their own spontaneous impulse life, where can the sense of independence and self-confidence come from to assume the pains of persistent creative effort? Lack of self-sensitivity and self-awareness resulting from fear absorbs energy otherwise available for creative effort; at the same time it shuts off the source of creative transformation of experience.

The stereotyped dullness of an uncreative life is not due solely to the fears of the individual, but fear is an enormous barrier to creative work. The individual's struggle to free himself of the fear of making mistakes, the fear of social disapproval, the fear of separateness, and the fear of his own unconscious processes might achieve a whole new structure in his internal citadel. The individual never develops or sustains these fears in isolation, however; others pressure him to conform to their ways and expectations. Others punish his disapproval of "different" behavior, isolate him from their company, and frown on his expression of hate, greed, lust, anger, irritation, and desire. These group pressures pose a difficult problem for each person: how to conform to the reasonable expectations of others enough to survive, to work, to love and be loved, and yet remain free to make mistakes, to be different, to be alone, and to recognize and face conflicting feelings. The creative person must see the demands of others but view them in perspective. He must be able to understand what others are asking of him without allowing these demands to change his own values and tastes, an alteration which would impair his ability to evaluate his own experience. Unhappily, a person who can accomplish this successfully is clearly exceptional, and his development as a creative person sometimes forces him to leave the very groups that need his insights the most—to remove himself to other groups who permit more divergence and less conformity with their

own ideas and norms. The discovery of a person who can do this makes it all the sadder to contemplate the great majority who settle for allowing others to set their standards and ways and do not even question the mode of life prescribed for them.

The creative process is impaired by a liking for material rewards. Any motive for work stronger than the fascination with solving the problem involved hampers the development of creative solutions. If the primary motive for writing a book is the money its publication will being, the author's interest will lie with the money rather than with the characters, the plot, the deeper meanings he wishes to convey. If the painter's main ambition is to sell his canvases for very high prices and become an affluent member of society, the color, form, and meaning will be of secondary importance and the truly great work will not unfold. Mediocre achievement and competence seem to follow a lack of deep commitment to the work itself. Of course, creative people must eat and live as must others; they must eventually be paid for their work; but if the pay is the most important motivation, the product of their work is not likely to be truly meaningful.

If one agrees that the main business of creativity is solving aesthetic, theoretical, or practical problems in an original but fitting manner, one can readily see that failure to perceive the problem correctly can sadly frustrate a creative solution. The complete and accurate definition of the problem is the firm foundation on which the new solution rises. We may be certain that perceiving only part of the problem leads to a partial, lopsided, or biased solution, irritatingly incomplete. There is good reason to believe that the inability to look beyond the obvious surface problem to the ultimate problem underlying it will bring about a shallow, surface solution. Defining the problem correctly means framing and posing the right questions. When Gertrude Stein was on her deathbed, her devoted companion, Alice B. Toklas asked her anxiously, "Gertrude, what is the answer?" And Miss Stein replied, "Alice, what is the question?" Ultimately a creative person, like a vigorous society, is one that asks questions not the one who gives answers.

Failure to arrive at a creative solution is again and again revealed in the studies as a result of over-readiness to categorize. Much evidence has been assembled that premature classifications and stereotypes prevent the person from seeing all the elements in the problem or in con-

fusing elements that should be looked at separately or in preventing the fruitful recombination of elements into new patterns. Elements of the problem first have to be viewed freely, speculated about, played with, arranged and rearranged, randomly examined and pondered. The discipline of analysis and categorization must come late in the process or the hoped-for outcome will not occur.

Discouraging failures of the creative process sometimes occur because of too little knowledge. Without the supporting structure of the necessary facts, information, discoveries, and theoretical developments, certain types of new solutions are impossible.

A great mass of too much knowledge, however, can be an equal handicap. Failure to see the forest for the trees, resigning from the challenge of the problem because of the mental dazzle of too many facts, is a more common experience than we often realize. The case is much the same for those overbombarded with a multitude of stimuli who are aspiring to select the meaningful new pattern. Artists are often willing to make painful sacrifices not to know too much, to draw too much from others, to withdraw to an environment free from excesses of information and stimulation.

It is clear to those studying the creative process that the tendency to mask or repress part of the crucial elements of the problem is defeating. The object may be embedded in another context and thus not seen as an important element that can be recombined in a new way. Since there is a strong habit in all of us to see items as usable in a certain way, we may be unable to break away freely from that idea to a new one. If an iron is used to press clothes, we do not usually see it as a weight, as a wedge, as a weapon. A misleading set, predisposing one to see a given group of circumstances in only one way is a dam thrown against the free-flowing river of creative exploration.

Facilitators of the Creative Process

Inner conditions encouraging the creative process interact with external factors and are inseparably interrelated with them. The less creative person becomes more free and creative in certain environments and after certain experiences. The more creative person can be stifled if the environment does not provide means for advancement into the new.

For example, if a man who previously has exhibited no creative thinking gets into an environment conducive to creative development, he may begin to see with a new open-eyed vision surprising to those who knew him under the old conditions. On the other hand, if a group of research scientists who have produced many new and original ideas get a new supervisor who does not encourage creative trends, they will shortly become an impoverished group with few creative ideas. The ability to see differently can be encouraged both by the person himself and by giving him the experiences and environment that develop exceptional minds.

Since the truly creative person is able to be open and non-analytical, he has the obligation to remain as open as possible to experience even when it is painful, ugly, or contrary to his own wishes and thoughts. It is a remarkable fact that the capacity to open doors depends on a fresh look at doors in general, an inventiveness in seeing many possible ways of opening them, and an imaginative refusal to analyze all previously accepted ways of opening doors. There have been few recombinations of known elements which resulted from shutting off the off-beat, the seemingly irrelevant, even the hurtful. Rather, originality arises out of not being willing to remain in a predictable, ordered world, but to discover what is hidden in the chaos, the conflict, and the disorder. The less creative have their own way of putting it: "Let us put our thoughts in order." Few ask the question, "How can we be open to disorder and confusion and thereby develop the creative capacity to rearrange ideas into a newer and higher and more meaningful order?" The imagination is freed through being open to all that touches it.

An individual approach to problems is possible if one can avoid premature closure. Eventually, after the new way is thought of, testing must occur, analysis and rejection of elements may refine the conclusions, certain outstanding colors or rhythms or forms or concepts will stand out over others. But the testing, refinement, and emphasis must not come too soon. The premature structuring of situations and problems must be severely scrutinized and firmly rejected if the creative element is to be born. The outstanding and imaginative person is largely exempt from closing in too fast.

The great majority of creative activity increases with age. Those who value the sensitive awareness of small children will cry out at this statement, but children are notoriously conservative and do not like things

changed. To stimulate fluency of ideas in children is more difficult than to evoke uncommon responses from adults because unusual solutions arise out of experience. Children as yet have not had a sufficient variety of experiences to use them inventively. They do not know what goes on in society and have no ready means for finding out. Nor do they have the means for evaluating the effects of actions, thoughts, words, and ideas. A child may be talented, he has creative faculties, but he very rarely makes an important contribution. We like to think of the wonderful forces unleashed by the mind of Mozart at an early age, but his greatest productivity and most meaningful contributions occurred when he was a man. While he was still a child his creativity was truly potential. A sensitized adult mind realizes how often it rejects meaningful experience because of pain, distaste, or habit; it wants creative growth, and this inclination causes it to seek out new experience and capitalize on accumulated happenings, feelings, thoughts, and ideas.

Creative thought increases with education. Educators and those with considerable formal education will point out that often the formal structure of educational institutions inhibits good ideas, that the order of the curriculum and some teaching methods stifle creative thinking, that the authority-centered college classroom is not always conducive to creative development, that built-in rigidities discourage new, open-eyed vision, and that the academic lock-step does not encourage students to see differently. Such criticisms are valid. However, in spite of the restrictions of formal education on creative trends in students, education usually offers the possibility for a more enriched life to those who encounter it than does the life of those who for one reason or another have had to forego it. Education stimulates creative habits because, like getting older, it provides new and various experiences. Constructive discontent can be sparked by being forced to encounter new teachers, new ideas, new attitudes, and new companions.

Exceptional minds will improve more by studying in some fields than by studying in others. Literature and the arts offer one of the best means for freeing impulse life, for expressing formerly inhibited feeling symbolically, and thereby for discovering more about the self and the world. Philosophy, religion, and the history of ideas challenge the student's conception of the world, his ethical principles, the emotionality of his beliefs, and offer him a variety of values, systems, and con-

cepts. Mathematics and the natural scie[illegible] if taught in the right way, expose the student to the dangerous a[illegible]nconventional, to passion and curiosity, and to discovery and cha[illegible]e. The more vocationally oriented fields of engineering, education, law, medicine, and agriculture emphasize the "how to" rather than the "why," and are far less likely to free, or challenge, or to stimulate curiosity and questioning. By this time personnel managers who are seeking the truly creative person are, through hard experience, looking for college majors that emphasize the liberal rather than the vocational subjects. Tiny Reed College with an inadequate physics laboratory and no Nobel Prize winners on its faculty graduates a greatly disproportionate number of students who go on to become great theoretical physicists. Perhaps a contributing factor is that students at Reed are required to take a two-year course in the humanities; the philosophy, history, art, architecture, and music of the ancient and modern world.

Of course other educational factors are important in increasing the capacity to open new doors. How a course is taught matters, and the conditions of student life matter. A course in literature may emphasize categorization and neatness, may reward only the "right" answers, may be impersonal and abstract and segmented. A course in business administration, on the other hand, might be taught in a way to widen the possibilities of experience, to enhance identity and understanding of others, and to develop hypotheses. Encouragement of inventiveness is less likely to happen in vocationally oriented curricula than in liberal education because of the nature of the subject matter itself. The teacher must be even more imaginatively gifted if he teaches a vocational course than if he teaches the humanities because the subject matter is less concerned with what can be done in the imagination.

The value system accepted by the original person differs from that of people less interested in recombining known elements into something new. Those who emphasize practicality, profit, promotion, action, and competitive success are less apt to discover what is hidden. A value system which esteems curiosity, inquiry, and the pursuit of truth wherever it may lead seems to develop the free imaginati[illegible]n and enlarge creative capacity. Ironically, those who identify most with the organization for which they work, who see themselves as "General Motors men" are less likely to rearrange ideas in a manner which will most benefit the organi-

zation. The chemist who sees himself as a chemist with an individual approach will be more apt to find new paths in chemistry to the eventual profit of Du Pont than the man who sees himself as a "Du Pont man" and puts the profits of Du Pont and his own salary as primary values. However little the scientist may value the organization, the creative element in him that holds other values will tend to result in outstanding and imaginative work for the organization.

March and Simon developed a "law" which states, "Programmed activity tends to drive out unprogrammed activity." Obviously, answering mail, attending committee meetings, answering the telephone, and analyzing data are not activities which develop sensitive awareness. Those engaged in creative activity require unprogrammed time, time to think, to ponder, to fantasy, to probe and pose problems, to wrestle with concepts. A blindness of our present-day society is the inability to see how we silence fluent ideas by making a prize-winning scientist a chairman of a commission, putting more telephones on his desk, and assigning him a secretary to help him answer the many letters. This unhappy fate is far less likely to befall poets. The sharp decline of creativity in scientists after a certain age is in sharp contrast to that of poets which remains very high until senility. Instinctively the artist shuns membership on the art commission and thereby continues to respond in an uncommon manner in his painting up to a ripe old age. If a person or an organization truly values unusual solutions to problems, it must be reminded that considerable time free from the distractions of routine and detail is necessary for the maximum development and utilization of talents. Frantic activity has been defined as losing sight of your goal and redoubling your efforts. The plain fact is that authority is often impressed by sheer busyness, by signs of industry, and is often suspicious of the worker or student with his feet on his desk staring out of the window. Such a worker may not be using that time in an inventive manner, but it is impossible for him to use telephone calls, memoranda, or agenda to develop creative faculties or products. Those able and willing to make important contributions have every right to ask for privacy, free time, and large areas of unprogrammed activity. They have this right as long as they grant the same to others with creative potential.

Although the values, attitudes, and skills of the individual sensitized mind will always be fundamental to creative growth, the environment un-

leashing the wonderful forces of that mind will often have to be provided by the supervisor. Different supervisors have radically different effects upon the creative thought of those supervised. These differences have been subjected to empirical testing. If the supervisor is open to new, good ideas, both his own and those of others, if he gives high job autonomy, if he is an able and competent person in his own right, and if there is sufficient interaction between him and those supervised, creative thinking is enhanced. Few supervisors who are critical of and hostile to new ideas can expect creative development in those working with them. Sooner or later, mediocre ability in the supervisor will rub off on those supervised. But when an open, able supervisor gives job autonomy and interacts with his staff, new open-eyed vision will conceive new hypotheses and put them to the test.

The ability to see differently arises most often in the middle class. We can all point to startling exceptions, but the large majority of those with creative habits of mind do not come from lower or upper class homes. The myth of the enriched, impulsive, earthy lower class environment producing artists, writers, and scientists has been exposed. The upper class apparently admires creative products but does not foster the constructive discontent leading to creative trends in their children. The middle class values of curiosity, independence, self-reliance, individualistic struggle for achievement, and commitment evidently predominate over the pressures for conformity, anti-intellectualism, and a liking for material reward so often seen as typical of the middle class and castigated by critical commentators.

The zeitgeist is always relevant to creative productivity. In some periods of history such as in Periclean Athens or in Florence of the Renaissance, the truly creative person flourished. Such periods are characterized by an interest in aesthetic expression, a liking for playing with complex new ideas, a strong, self-reliant mercantile class, a capacity to be puzzled, and challenging problems posed by new ideas and new experiences. The zeitgeist also helps to determine what areas of creative activity will be welcomed and many of the forms creative expression must take. In Byzantium frescoes and mosaics, in Arabia mathematics, in twelfth-century France cathedrals, in nineteenth- and twentieth-century Europe and America science were given the primary societal permission to open new doors. Some societal consensus must exist that a fresh

look in these areas is valuable, and that those imaginatively gifted are esteemed. Society itself provides the conditions for inventiveness and the needed approval for something new in the desired areas.

IMPLICATIONS FOR TEACHING

Progress in understanding creativity has given respectability to many principles already intuitively grasped by good teachers. The research on creativity underlined the importance of certain specific teaching methods, not only in adult education but in teaching generally. Some of these implications may be summarized as follows:

1. Asking and Answering Questions. "Genius," said Einstein, "is the infinite capacity to be puzzled." Those who worked with him commented on his "inability to understand the obvious." Jacques Hadamard, the French mathematician, in his delightful volume The Psychology of Invention in the Mathematical Field reports from his experience and observations in mathematical discovery, "Before trying to discover anything or solve a determinate problem there arises the questions: What shall we try to discover? What problem shall we try to solve?"

Current teaching suffers from a habit of teachers—asking questions, students answering. The mandate for those who wish to develop sensitive awareness in the student is for the student to ask questions—questions arising out of his own experiences and concerns. Teachers sometimes forget this and yield to impulsive demands for the instructors to ask the questions. Or they may try to quiet the clamor arising out of fear and perplexity by undertaking the responsibility for the student of ferreting out the essential questions. In adult education, there is the additional necessity of keeping sufficient enrollments in their classes; adult teachers often have to calculate how much they can quiet the anxiety of students by giving them questions right now without sacrificing too much of what the students ought to ask themselves, or will ask themselves when fear has lessened.

When a student asks a question, the teacher's greatest temptation is to answer it. The great problem is to separate sharing of sources and possible avenues of approach which help the student arrive at his own answers from giving the desperately wanted immediate answer to a conceptual query which a student should seek out for himself. The difficulty

for the teacher is how to do better the things he intends to do; to realize more fully, despite pressures from the students themselves, the aim of developing the potentiality for unusual, personal, unique solutions.

2. Free Association. The student is embedded in society and in the culture which emphasizes practicality, power, success, social adjustment, and purposeful action. Students can be helped to escape these pressures by encouraging free association. Teachers have the task of influencing students to use analogy and metaphor by regularly asking the student "What is this like?" to recognize and understand the cultural influences, and to release the potential of fantasy and play—the sources of creative inspiration. Granted that students often seem to be of two minds about this goal and contrive to put various difficulties in the way it is carried out, teachers have a fighting chance to achieve these objectives by encouraging the use of analogy. In adult education, teachers have in their hands for a period of time people who for an hour or two a week can be relatively isolated from the rest of society and can be urged to notice the odd, the unusual, the contradictory, and the ironic. If teachers should achieve moderate success in students' use of free association of ideas, if their students were influenced to express concepts in simile and metaphor, the level of their creativity might be raised; and, quite possibly, these students—especially those who are adult—might effect changes in our society itself. If our culture and our society are to be changed at all by the deliberate application of intelligence and foresight, no group has a better chance of initiating change than teachers helping adults to notice, to associate freely, to use metaphor and analogy, to ask meaningful questions, and to seek creative solutions.

3. The Place of Verbal, Logical Analysis. It is teachers who have responsibility for showing students the relevant use of logical analysis. The burden of delaying analysis until the process of verification begins rests mainly on them; and, as professionals, they have a right to insist that the initial periods of posing the question and obtaining insight remain loose and unorganized to permit fluency of ideas. There is no denying, however, that delaying logical analysis until the verification period is reached, is difficult and sometimes even frightening to the teacher. The teacher, too, is a prisoner of a culture that prizes the highly verbal, that admires logic, and that respects coherent analysis. Students themselves may plead for time to consider the question and to play with ideas

only to find the teacher demanding categories, outlines, critical examination, and careful logic immediately. The teacher who permits logical analysis to come later in the discovery process may be under fire from his colleagues who see his class as messy, noisy, and unorganized.

4. Skepticism. Skepticism is the doctrine that all knowledge is uncertain; it is a method of suspended judgment, criticism, or doubt; it is a point of view opposed to dogmatism and appears as a reaction from it; it is a doubting frame of mind. The typical teacher is by training, by inclination, and by the requirements of his position, a specialist in a subject. He is devoted to the advancement and understanding of his subject. It is thus his natural inclination to dislike suggestions from students that his knowledge is uncertain, even when he himself knows it is. The student may view the teacher and his subject from a distance, as it were, attempting to suspend judgment about the progress being made toward the objectives of the course; but the teacher, typically, is focused upon his personal investment and involvement in the subject; any criticism of his opinions and attitudes shakes his feeling of self-worth. Because each teacher is a special advocate, he finds it very difficult to accept, much less encourage, the doubts of his students. One may observe the futile ritual in many classes where a subject actually is presented as dogma; one may read lesson plans and outlines of courses which leave no room for the uneasy, doubting frame of mind. Improvement will require a new method of planning classes, one fashioned and used to reveal that knowledge is uncertain. We have sufficient knowledge about uncommon responses and sufficient conviction about the importance of inventive use of ideas to find and apply the incentives necessary to induce students to suspend judgment, to criticize and to doubt in order to develop creative ideas.

5. Punishment of Mistakes. Another barrier on the road to creative learning is the fact that teachers, typically, organize the course and teaching process in such a way as to make the tentative and experimental approach exceedingly difficult. This state of affairs has its logic and its history. Traditional learning theory has held that, for learning to occur, right answers must be rewarded and wrong answers punished. In the opposite of this, teachers struggle to encourage many tentative tries without excessive fear of making mistakes. Only recently has the faintest respectability accrued to the importance of error in trial and error

learning, the recognition that mistakes punished too severely may result in no effort at all while even rats will attempt to solve mazes because of curiosity even when no reward or punishment exists. Small wonder that teachers are not relaxed about mistakes and cannot therefore encourage tentative and experimental attempts to solve problems in many or new ways.

6. Permission for Disorder. Pressures from administrators and students have fostered a faculty value for order—order in meeting times, in methods of presentation, in the physical arrangements of the classroom, and in student work. These make permission for disorder very difficult, even when the impulse to permit it is strong in the teacher. Measures for neatness and order originally contrived for the greater ease of teacher and student come to serve the purpose of alleviating anxiety until they become autonomous and hinder important student contributions. Interests become vested in the machinery itself so that the machinery of neatness, routine, schedule, and order persists even after its connection with smoothing the way for creative potential is lost.

7. Multiplicity of Experience. Teachers sometimes go so far in protecting their professional status and self-defined role that they neglect giving the student the many experiences he needs to sensitize his mind. In advancing his own subject matter, the teacher may restrict himself to lectures instead of giving the student experience in discussion, films, demonstrations, slides, excursions, laboratories, reading, writing, and student reports. In his desire for security, he may "stick to the subject matter" and "cover it" (like a tablecloth) without relating it to other disciplines or to wider concepts and problems.

8. Time and Quiet. At the present time in America, there seems to be an unhealthy preoccupation with bustling busyness, preferably noisy. But creative growth occurs with time to think and explore and with quiet and privacy for contemplation. Our teachers sometimes do not lead the way to contemplation; often students are graded on quantity of class participation. Although so firmly committed to thought and learning, they nonetheless make little effort to afford students time to think and learn. Their classes have been infiltrated by the enemy—constant talk and interaction. It is not only that teachers do not give students time for creative growth, but also that they rarely give themselves enough time for the free play of the forces which could be unleashed by their own minds.

The trend toward the disappearance of the quiet, thoughtful student is a sign of a more general phenomenon: the teacher who has become indistinguishable from other successful men in his busy, minutiae-filled life. And not only in class is this apparent. In adult education, every conference planner has to fight faculty and members of the community to achieve blocks of free time for participants not taken up by lectures, symposia, panels, discussion groups, coffee breaks, or meals.

9. Aesthetic Experience. One barrier to good ideas in the classroom—and this is probably especially true of adult classes—is the lack of aesthetic experiences. Art, music, drama, and literature could be used to liberate minds in many subjects. Courses not specifically concerned with the arts, may yet be taught in a way that develops aesthetic appreciation for an artistic formulation of an idea and for the tasteful presentation of a creative thought. The reason for the paucity of aesthetic experience is, of course, a lack of knowledge of the art, music, and good literature bearing on the subject. More fundamental than this is the lack of realization by teachers of the aesthetic dimensions of the subject they are teaching, or sometimes an embarrassment about revealing the aesthetic excitement they find.

10. Freeing Emotions. Creative development arises out of the emotions as well as thoughts. The astronomer Kepler speaks of his "sacred fury"; Maslow speaks of the wonderful capacity of self-actualizing people to appreciate "freshly and naively the basic good of life—with awe, pleasure, wonder, and even ecstasy." The artist Cezanne describes "a tender excitement, this effusion of the depths toward love." Yet the techniques and procedures of most adult education are almost always derived from a theory of the primacy of rational thought and the need for impulse suppression. The results are often disappointing because creative development demands a harmonious interaction of thought and feelings. Experimentation and communication in releasing emotions to suffuse thought can become more a part of our practice when teachers try to become more aware of their own emotions and the fears and anxieties aroused by the emotions of students.

11. Evaluation. One might hope that the profession of adult education will develop the use of evaluation to encourage the new, open-eyed vision rather than discourage it. Teachers are in a position to bring about and sometimes do bring about, the ability to see differently by the

skillful use of evaluation. The student enters a class in a condition crying out for change; evaluation can offer a heartening encouragement of change. The student can be confirmed in prejudice and narrowness of outlook, shallow and transitory interest, and a rigid system of thinking by being taught implicitly to study for the test; by being punished severely for wrong answers; and by being evaluated for his grasp of facts. Unless educated out of it, his lack of creative fantasy and foresight will persist. But, as we know, it is possible for a student to become relatively broad in outlook and open to new experience, independent and disciplined in his thinking, and deeply committed to some productive activity if evaluation is always tentative and based on the creative trend he displays, his openness to ideas, his independence in developing concepts and ideas. Such changes are profound, and profoundly significant; they are no less to be valued because they are theoretically within reach of every adult student and are encouraged by an appropriate evaluation process. The student wants to become a person who can lead an enriched life but at the same time he would like to have this happen to him without developing new creative habits. The student himself may ostensibly prefer the factual examination, to know "what will be asked on the test" so he can study for that rather than being asked to take a fresh look, to define for himself, to pose problems for himself, and seek out their answers through multiple attempts and several false starts. Thus it is that some of the striking and most important changes in students are those which occur after the resistance to evaluation of individual thoughtful expression is overcome. Such changes do not happen as a result of an inevitable growth process; they happen because effort is exerted by the teacher to evaluate the student and have him evaluate himself against outstanding and imaginative criteria. What makes the student promising, despite his often distressing condition, is his eagerness for success and approval; and this need renders the evaluation process crucial. Even the most rebellious student will work toward the goals set, but he judges the importance of the goals by the methods of evaluation used to measure his progress toward them.

IMPLICATIONS FOR ADULT EDUCATION

What, then, does this all mean for adult education?

The purpose of adult education is to help people learn more about themselves and their environment, to become increasingly effectively functioning citizens in an open society. An open society needs original minds to solve the many problems it faces and to discover new meanings hidden behind new experiences. Adult education need not be a plaything of forces over which it has no control. What can save it from this status is the element of creative capacity in adult educators and their urge to free it in others. Adult educators have, or can have, knowledge of conditions; they are free, within limits, to use their free imagination to influence the course of adult education.

Adult educators like all educators often have the function of determining what is taught and how it is taught. It would be a very sad state of affairs indeed if they could not offer courses that would develop aesthetic sensitivity, stimulate imagination, reward self-reliance, encourage intuition, empathy, and insight, and evoke a commitment to learning. Counterforces to these efforts—such as the pressures for enrollments, vocationally-oriented students, teachers who lack inventiveness, conventional communities and rigid, moralistic superiors in the hierarchy—are not minor problems but will decrease in strength if the need for people who can recombine known elements grows more apparent. Recognition of the problem can be the first step to achieving a creative solution.

Stimulating to all adult education personnel ought to be the thought that a common pattern among scientists who evidenced an individual approach was that they were involved in some form of adult education activity, usually in an area other than their field of specialization. One new invention for instance arose out of a rearrangement of ideas in the head of a scientist while he was taking a course in Spanish dances; noting the articulation of the arm joint of a dancer, he suddenly saw a new way to arrange the elements of a transistor. If adult educators can see the importance of their work in this potential for stimulating the crea-

tive element in students, they will seek to develop outstanding and imaginative programs and courses, to demand freedom for creative activity from their institutions.

The administrator in adult education can help to set conditions for creative development of students and staff through his handling of several agents of the educational process, as discussed below. These include: the curriculum offered; the organization of the school, program, or institution as expressed through policy and practices; his staff and teachers as he supervised them; and his own personal creative development.

1. Curriculum. The adult administrator has to conceive of his total program as a process that fosters constructive discontent in staff, teachers, and students. Profound changes in productivity can be brought about by the administrator through curriculum, selection, and encouragement of teachers, organizational structure, and intellectual climate. The basis for creative adult education administration is the administrator's knowledge of what his entering students are like, particularly his knowledge of their potential for inventiveness and of their resistances to it, and knowledge of curriculum through which desired changes in origin can be brought about. The instrument of change is not alone the individual teacher but the whole educational program, the whole learning environment. The individual teacher, with his primary interest in his own subject, cannot plan an over-all program designed to meet the objective of encouraging the imaginatively gifted. The teacher must be free to advocate a point of view, to promote special interests, to win disciples. Only the administrator can provide maximum freedom within a comprehensive curriculum plan. The community and students cannot dictate curriculum choices in their entirety, either. Too often in adult education what the community or students think they want or need is the sole determinant of subject-matter offerings. The administrator has the responsibility of leading them to the arts, to literature, to philosophy and the sciences. When a curriculum designed to foster creative capacity is carried on, the profession of adult education administration gains the recognition that is required for the adult program to have a creative impact on its students and on society.

2. Organization. Although wisdom and experience will always be fundamental to the adult education administrator, new knowledge of "how

to do it," of how to induce desired changes in teachers, staff, superiors, and the community can come from creativity research. Different forms of organization are based on different assumptions about the nature and processes of facilitation and communication. From empirical observation we now know of the importance of permitting some disorder, of providing time and quiet and, at the same time, facilitating the communication of able people with each other. Policies and practices in administration, ranging all the way from the creation of a certain kind of supporting climate to particular educational devices such as reports from teachers, frequency of staff meetings, flexible scheduling, or visits to classes are based on hypotheses concerning how certain situations will influence students and learning. Sooner or later these hypotheses have to be tested and this can only be done by measuring them against the necessary conditions for stimulating free imagination. As knowledge of the kind of organization which evokes original approaches accumulates, new hypotheses should be conceived and put to the test. No simple formula exists for creating an organization that opens new doors.

3. Supervising Staff and Teachers. Teachers may have knowledge of what to do in order to reach their objectives of bringing out something new in students and still be ineffective because the administrator gives neither them nor his staff sufficient autonomy. The structure and function of his class should be the teacher's responsibility. The administrator needs staff and teachers not only with knowledge but also with attitudes he can respect and trust. The central problem is to lead and inspire without releasing frustration in recrimination. Faculty and staff must be given a job, told what it is, and held responsible for doing it; but what to teach and how to teach it is the challenge for the teacher. The administrator communicates philosophy, gives a helping hand when asked, and encourages new ways of approaching problems. But if by tone, gesture, words, or attitude the administrator indicates the distrust and suspicion rendering close supervision necessary, the autonomy necessary for developing the creative element in the staff will be lessened.

While granting autonomy, the administrator at the same time must set up ways for the staff and teachers to interact with him. Although we discover what is hidden usually in periods of quiet or of being alone, the stimulation of sharing ideas and discussing concepts with a respected supervisor can stimulate creative activity. This kind of open, mutually

respectful interaction is especially difficult for the adult administrator as few of his teachers are involved full-time, their free moments are rare, and his own schedule is often excessively burdensome.

In the past, administrators have attempted to provide for such interaction through staff meetings and memoranda. Agenda-laden meetings have been designed under pressure to produce results of immediate usefulness, and hence they have tended to be too concrete and at the same time too fragmentary. Much of the same criticism can be made of the extensive class reports which some adult teachers have been required to make. By answering only immediate administrative concerns, such devices become the good face put on the less important and trivial, stealing valued time from thinking and contemplation. They rarely produce increased sensitive awareness or fluency of ideas. The basic concern is not to rearrange ideas or to recombine known elements into an aesthetically satisfying design, but rather to elucidate procedures and details. To ask the administrator to interact with his teachers and staff but also to keep programmed activity at a minimum demands a high standard of talent. The result in educational terms should be an increase in uncommon responses and unusual solutions by the staff.

In some programs there is education of a high quality, but this is often the result of teacher and staff evaluation on the basis of quality. In some adult programs, teachers are well aware they are actually evaluated by the number of students enrolling and completing their courses. Some adult teachers are judged by their administrators on even more mundane criteria such as personal appearance, neatness of rooms, quietness of the class, and promptness of reports. Only a teacher with the highest internalized standards can avoid being influenced in his teaching by the indices an administrator apparently uses to judge his performance.

4. The Administrator as a Person. To bring out the creative qualities in his staff, an administrator must be open to new ideas, both his own and those of the people he supervises. This not only seems obvious on reflection, but is supported by the University of Michigan research. The behavioral manifestation of this openness is a receptivity to new ideas, unmarred by evaluation and criticism, when the concept is first proposed. Most of the success of the famous "brainstorming" technique can be laid to the temporary suspension of the evaluative and critical functions when problems are being discussed and new ideas presented.

Evaluation and criticism are, of course, essential before an idea is complete for action or experiment; the stimulation of the production of new ideas requires a postponement of careful analysis, not its prohibition.

It is no accident that administrators who have imaginative staffs are usually very able men in their own right. On the one hand, the imitative quality in human beings makes us apt to become like our friends and associates, and unconscious emulation of an able administrator renders a staff more creative. On the other hand, able people are attracted to other able people; an intellectually able administrator will select an intellectually able staff. Moreover, the creative staff members already employed will tend to remain with an administrator who is able; the less creative members of the staff will tend to go elsewhere. If one would spend an hour with any given staff, without asking a single question about the administrator or receiving any information about him, one could quite probably predict his ability by the competence of the people working for him.

An administrator who values uncommon responses in his staff and students and tries to provide a setting in which unusual solutions will be made to problems will continue his own liberal education. It would be poor practice to provide a liberal curriculum to be inventively used by students, but fail to expose oneself to the arts, literature, philosophy, and other new knowledge and experience. All administrators have difficulty doing this. Adult education administrators are no exception. Although they are educators, and resemble in important respects the students they serve, they rarely fully accept a conception of themselves as learners, trying through education to develop further their creative faculties. They are so subject to the pressures of forms, schedules, meetings, and memoranda that they are at a disadvantage, relative to the adult teacher and student, in having to make a more conscious effort to reserve time for thinking, learning, and contemplation. Since an adult administrator who makes important contributions will tend to develop a more complex and even larger program, his creative potential is apt to be increasingly hindered. More than this, his increasing distance from students and books isolates him more from the world of thought and the interplay of ideas.

An adult education administrator who values developing sensitized minds through creative growth will probably be more capable of creative thought than the administrator who thinks of himself primarily as a Uni-

versity Extension person, an evening college person, or a public schools man. If the research from creative scientists in industry holds true for adult educators, the really interesting and important ideas come from those who identify themselves with intellectual and humane values rather than those who identify with an organization. Our values determine how we spend our time, where we expend our energies, and how we evaluate ourselves and others. If the administrator values short-run organizational goals more than the development of creative thinking in himself, his staff, and his students, the organization itself will suffer from the lack of vigor of his mind. There is a strong tendency for all organizations to prize organizational loyalty ahead of creative development; but such a demand is eventually self-defeating. Of course, without an effectively functioning organization, no educational programs will take place at all. The type of education offered will be influenced by the nature of the organization. But there is accumulating evidence that the commitment of the administrator of the organization must be to something beyond the organization itself if new, open-eyed vision, so essential to good education and the future of the organization, is to develop.

Efforts to conceptualize and encourage the creative values have been at the center of much adult education thought and discussion in recent years; hopefully more adult education administrators will become lively advocates of the values of originality and the free imagination.

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